



Android App Based Home Automation Using IOT

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ABSTRACT: Now a days technology is running with time, it completely occupied the life style of human beings. It is being used everywhere in our daily life to fulfill our requirements. We are employing different sensors for different applications sometimes we may even use same sensors differently for different applications. We not only increase the speed of life but also increase security with good ideas by making use of advanced technology. In this project we are making use of technology to sense serious problems with detection of sound and make devices ON OFF respect to sound.

This project required voice recognition board HM2007, in which voice sample is recorded and compiled by itself. Compiled output given to the designed system and arduino board takes further action to make device ON-OFF.

KEYWORDS: sensors, security, technology, sound, arduino board.

I.INTRODUCTION

Our project is developing with voice recognition board-arduino, according to our voice say it FAN, now FAN makes ON by our proposed system. Similar FAN OFF for make FAN OFF in the proposed system.

In this system we have implemented 4 devices to control we can implement these devices up to 16 devices maximum with this modules. In this project we have used arduino uno voice recognition board, LCD display, relay driver and relay with respective devices.

II. ARDUINO UNO (System Model)

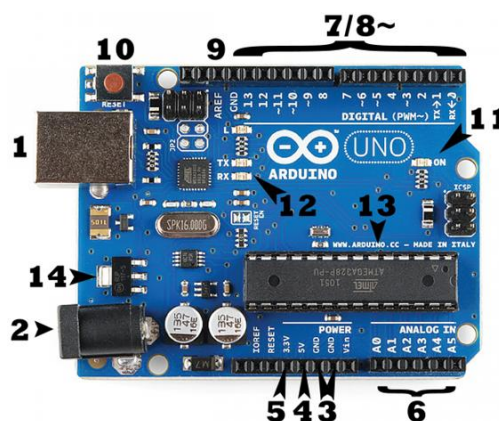


Fig1. ARDUINO UNO

Arduino is a single-board microcontroller meant to make the application more accessible which are interactive objects and its surroundings. The hardware features with an open-source hardware board designed around an 8-bit Atmel AVR microcontroller or a 32-bit Atmel ARM. Current models consists a USB interface, 6 analog input pins and 14 digital I/O pins that allows the user to attach various extension boards.



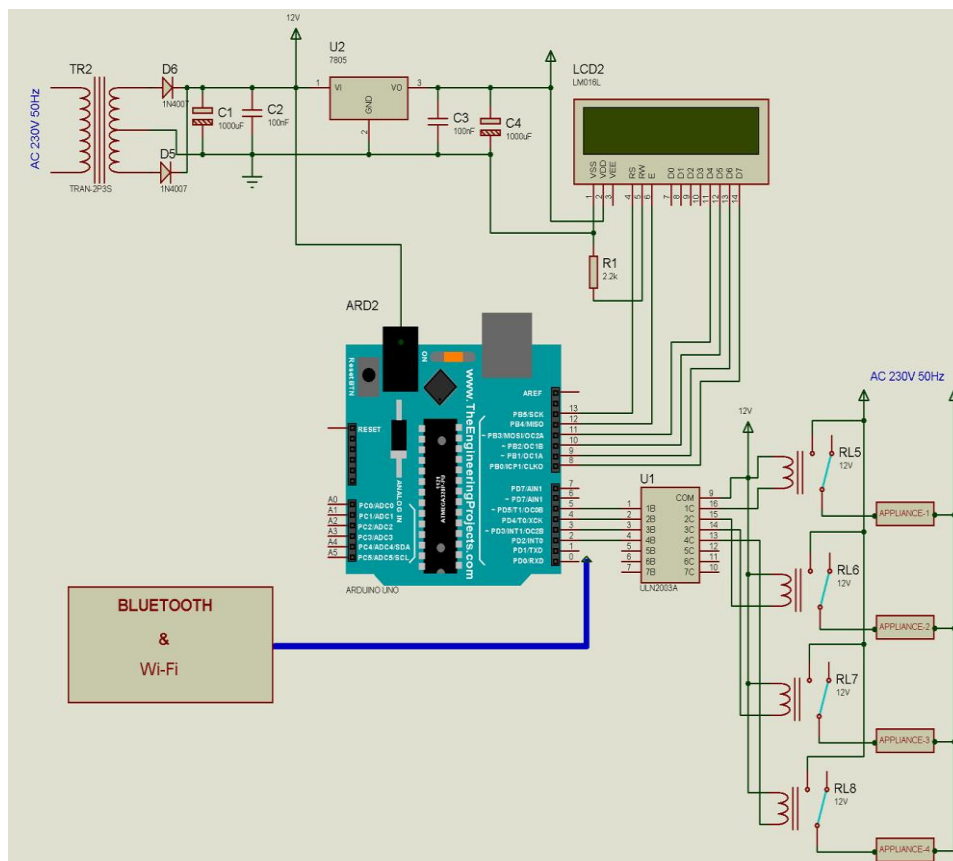
The Arduino Uno board is a microcontroller based on the ATmega328. It has 14 digital input/output pins in which 6 can be used as PWM outputs, a 16 MHz ceramic resonator, an ICSP header, a USB connection, 6 analog inputs, a power jack and a reset button. This contains all the required support needed for microcontroller. In order to get started, they are simply connected to a computer with a USB cable or with a AC-to-DC adapter or battery. Arduino Uno Board varies from all other boards and they will not use the FTDI USB-to-serial driver chip in them. It is featured by the Atmega16U2 (Atmega8U2 up to version R2) programmed as a USB-to-serial converter.



This is a Cable For Arduino UNO/MEGA (USB A to B)-1feet, you can use it to connect “Arduino Uno”, “Arduino Mega 2560” or any board with the USB female A port of your computer. Length is approximately 52 cm. Cable color and shape may vary slightly from image as our stock rotates. This is a standard issue USB 2.0 cable. the kind that’s usually used for printers, Arduino, etc. Compatible with most SFE designed USB boards as well as USB Arduino boards like the Uno.

It is very important to understand the cheap USB cables or faulty USB cables may harm your Printers and cause errors again and again while printing important data. For the error-free and long life of your printers, you must use high-quality USB A to B printer cables. We are selling highly robust and high-quality USB 2.0 Printer cable at a reasonable price.

III.WORKING





Here circuit requires 5V and 12V regulated DC supply. We used 230V to 12V-0-12V step down transformer. The output AC of transformer 12V is rectified by center tap rectifier. Rectified output is pulsating it is pure by the capacitor filter of 1000uf 25V. Now the out of capacitor is DC 12V-15V given to the arduino board, which is required to convert in 5V regulated for microcontroller and other devices, here we have used LM7805 regulator (inbuilt) for getting 5V regulated DC, For radio-bee and microcontroller IC.

In this arduino board (microcontroller) works with 16MHz frequency used for (timer configuration), the unwanted frequency produced is bypassed by the capacitor of 27pf capacitor. Reset pin is connected to resistor of 10K whenever reset requires the reset switch (2 lead push to ON switch/ micro push to switch) required pressing.

Wifi modem is connected to 12 and 13 pin of microcontroller to TX and Rx pin for Wifi modem ESP8266. It requires 3.3V supply provided with LM317 variable voltage regulator, with 330 ohm and 560 ohm resistors.

We have used 12V relay but arduino board output is approximately 5V, it cannot drive directly relay so relay driver IC used. Arduino PINs 2, 3, 4, 5 are connected to the 4, 3, 2,1 pins of relay driver IC ULN2003. Output of relay driver IC pins 13, 14, 15, 16 are connected to the relay and relays are interfaced with electrical AC devices.

Buzzer is connected with 6 no pin via BC548 (NPN) transistor amplifier in common emitter mode. Resistor is used to limit current for transistor.

IV.ADVANTAGES

- ★ The circuit required power supply for operation is very less. (12V DC, 750Ah)
- ★ The component required for this hard ware is easily available in market, and well in rate.
- ★ The circuit is compact in size, so small space is required.
- ★ Works with voice commands, due to voice command operation it is efficient to handicapped persons.

V.APPLICATIONS

- ★ It can be used in home application to control electrical devices.
- ★ It can be used in automation system for shop & molls.
- ★ It can be used in robotic application to control robot movements with remote control.
- ★ It can be used in security systems, by implementing few other hardware with this.

VI. CONCLUSION

Thus our group actively coupled with project, and we develop this project named as "**Android app based home automation using IOT**". It detects the voice, which is the voice sample saved in system, board compiles itself and makes device ON and show notification on LCD display. It can work satisfy in 2 meter range with good quality voice.

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